Claims

What is claimed is:

1. An ultralow firing temperature compensating ceramic composition for pure silver electrode comprising a main ceramic material system represented by formula (I) $Ba_w(Nd_xSm_y)_2Ti_zO_{w+3x+3y+3z}$, wherein $0.1 \leq w \leq 0.3$, $0.1 \leq x \leq 0.3$, $0 \leq y \leq 0.2$ and $0.4 \leq z \leq 0.7$, and a sintering flux material system represented by formula (II) (Zn,Si,Cu,Al,Mg,Ba,Bi,B)O, which comprises 1 to 5 weight % magnesium oxide, 1 to 5 weight % copper oxide, 5 to 30 weight % zinc oxide, 20 to 60 weight % bismuth oxide, 5 to 10 weight % aluminum oxide, 5 to 15 weight % silicon dioxide, 10 to 30 weight % barium oxide and 1 to 5 weight % boron oxide.

2. The ultralow firing temperature compensating ceramic composition according to claim 1, wherein the main ceramic material system of formula (I) comprises 10 to 30 mole % barium oxide, 10 to 30 mole % neodymium oxide, 0 to 20 mole % samarium oxide and 40 to 70 mole % titanium oxide.

3. The ultralow firing temperature compensating ceramic composition according to claim 1, wherein the sintering flux material system of formula (II) constitutes 5 to 40 mole % of the composition.

4. A sintering flux material system represented by formula (II) (Zn,Si,Cu,Al,Mg,Ba,Bi,B)O comprising 1 to 5 weight % magnesium oxide, 1 to 5 weight % copper oxide, 5 to 30 weight % zinc oxide, 20 to 60 weight %

bismuth oxide, 5 to 10 weight % aluminum oxide, 5 to 15 weight % silicon dioxide, 10 to 30 weight % barium oxide and 1 to 5 weight % boron oxide.

5. A laminated ceramic element produced from An ultralow firing temperature compensating ceramic composition for pure silver electrode comprising a main ceramic material system represented by formula (I) $Ba_w(Nd_xSm_y)_2Ti_zO_{w+3x+3y+3z}$, wherein $0.1 \leq w \leq 0.3$, $0.1 \leq x \leq 0.3$, $0 \leq y \leq 0.2$ and $0.4 \leq z \leq 0.7$, and a sintering flux material system represented by formula (II) (Zn,Si,Cu,Al,Mg,Ba,Bi,B)O, wherein the sintering flux material system of formula (II) comprises 1 to 5 weight % magnesium oxide, 1 to 5 weight % copper oxide, 5 to 30 weight % zinc oxide, 20 to 60 weight % bismuth oxide, 5 to 10 weight % aluminum oxide, 5 to 15 weight % silicon dioxide, 10 to 30 weight % barium oxide and 1 to 5 weight % boron oxide.

6. The laminated ceramic element according to claim 5 wherein the main ceramic material system of formula (I) comprises 10 to 30 mole % barium oxide, 10 to 30 mole % neodymium oxide, 0 to 20 mole % samarium oxide and 40 to 70 mole % titanium oxide.

7. The laminated ceramic element according to claim 5 wherein the sintering flux material system of formula (II) constitutes 5 to 40 mole % of the composition.

8. The laminated ceramic element according to claim 5, wherein the element is capacitor.